FINAL PROPOSAL

WATER QUALITY STANDARDS, DOCKET NO. 58-0102-1201

The proposed rule was published in the Idaho Administrative Bulletin, October 7, 2015, Vol. 15-10, pages 653 through 678. DEQ recommends that the Board take the following action:

IDAPA 58.01.02

010	Adopt as proposed
070	Adopt as proposed
210	Adopt as revised
284	Adopt as proposed
400	Adopt as proposed

IDAPA 58 - DEPARTMENT OF ENVIRONMENTAL QUALITY

58.01.02 – WATER QUALITY STANDARDS

DOCKET NO. 58-0102-1201

NOTICE OF RULEMAKING – ADOPTION OF PENDING RULE

EFFECTIVE DATE: This rule has been adopted by the Board of Environmental Quality (Board) and is now pending review by the 2016 Idaho State Legislature for final approval. The pending rule will become final and effective immediately upon the adjournment *sine die* of the Second Regular Session of the Sixty-third Idaho Legislature unless prior to that date the rule is rejected in whole or in part by concurrent resolution in accordance with Idaho Code §§ 67-5224 and 67-5291.

AUTHORITY: In compliance with Section 67-5224, Idaho Code, notice is hereby given that the Board has adopted a pending rule. This action is authorized by Idaho Code §§ 39-105, 39-107, and 39-3601 *et seq*.

DESCRIPTIVE SUMMARY: A detailed summary of the reason for adopting the rule is set forth in the initial proposal published in the Idaho Administrative Bulletin, October 7, 2015, Vol. 15-10, pages 653 through 678. After consideration of public comments, the rule has been revised at **Section 210**. The remainder of the rule has been adopted as initially proposed. The Rulemaking and Public Comment Summary can be obtained at www.deq.idaho.gov/58-0102-1501 or by contacting the undersigned.

IDAHO CODE SECTION 39-107D STATEMENT: The standards included in this rule are not broader in scope, nor more stringent, than federal regulations and do not regulate an activity not regulated by the federal government.

FISCAL IMPACT STATEMENT: The following is a specific description, if applicable, of any negative fiscal impact on the state general fund greater than ten thousand dollars ($10,000) during the fiscal year when the pending rule will become effective: Not applicable.

ASSISTANCE ON TECHNICAL QUESTIONS: For assistance on technical questions concerning this rulemaking, contact Don Essig at don.essig@deq.idaho.gov, (208)373-0119.

Dated this 6th day of January, 2016.

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Revisions to Proposed Rule for Pending Rule Adoption, Docket No. 58-0102-1201
The revisions made to the proposed rule are highlighted. Only those portions of the rule containing revisions are included.

210. NUMERIC CRITERIA FOR TOXIC SUBSTANCES FOR WATERS DESIGNATED FOR AQUATIC LIFE, RECREATION, OR DOMESTIC WATER SUPPLY USE.

01. Criteria for Toxic Substances. The criteria of Section 210 apply to surface waters of the state as follows. (5-3-03)

a. Columns B1, and B2, ~~and C2~~ of the following table apply to waters designated for aquatic life use. ~~(5-3-03)~~( )

b. Column C2 of the following table applies to waters designated for primary or secondary contact recreation use. ~~(5-3-03)~~( )

c. Column C1 of the following table applies to waters designated for domestic water supply use.

Note: In 2006, Idaho updated 167 human health criteria for 88 chemicals. On May 10, 2012, EPA disapproved Idaho's 2006 update of 167 human health criteria for toxic substances and the use of 17.5 g/day fish consumption rate for human health criteria (see IDAPA 58.01.02.210.05.b.i). This action was based on EPA's judgment that the fish consumption rate used in criteria derivation was not adequately protective. As a result of this action, the human health criteria published in the 2005 version of IDAPA 58.01.02.210.01 continue to apply and are effective for federal Clean Water Act purposes. These criteria are summarized in "Numeric Criteria for Toxic Substances (2005)" located at http://www.deq.idaho.gov/media/451725-human_health_criteria.pdf.

For more information regarding this EPA disapproval, go to http://www.deq.idaho.gov/epa-actions-on-proposed-standards.

A			B Aquatic life			C Human health for consumption of:	
(Number) Compound		a CAS Number	b CMC (µg/L) B1	b CCC (µg/L) B2	Carcinogen?	Water & ~~organisms~~ fish (µg/L) C1	~~Organisms~~ Fish only (µg/L) C2
1	Antimony	7440360				~~5.6~~ 5.2 c	~~640~~ 190 c
2	Arsenic	7440382	340 e	150 e	Y	10 dfg	10 dfg
3	Beryllium	7440417				h	h
4	Cadmium	7440439	1.3 i	0.6 i		h	h
5a	Chromium III	16065831	570 i	74 i		h	h

5b	Chromium VI	18540299	16	e	11	e		Bn	h	h
6	Copper	7440508	17	i	11	i		1.300	g	
7	Lead	7439921	65	i	2.5	i			h	h
8a	Mercury	7439976		g		g				
Note: In 2005, Idaho adopted EPA's recommended methylmercury fish tissue criterion for protection of human health. The decision was made to remove the old tissue-based aquatic life criteria and rely on the fish tissue criterion to provide protection for aquatic life as well as human health. Thus, current Idaho water quality standards do not have mercury water column criteria for the protection of aquatic life. While EPA approved Idaho's adoption of the fish tissue criterion in September 2005, it had withheld judgment on Idaho's removal of aquatic life criteria. On December 12, 2008, EPA disapproved Idaho's removal of the old aquatic life criteria. The water column criteria for total recoverable mercury effective for federal Clean Water Act purposes are located at http://www.deq.idaho.gov/epa-actions-on-proposed-standards.										
8b	Methylmercury	22967926							0.3 mg/kg	p
9	Nickel	7440020	470	i	52	i		~~610~~ 58	c	~~4600~~ 100	c
10	Selenium	7782492	20	f	5	f		~~170~~ 29	c	~~4200~~ 250	c
11	Silver	7440224	3.4	i							
12	Thallium	7440280						~~0.24~~ 0.017	c	~~0.47~~ 0.023	c
13	Zinc	7440666	120	i	120	i		~~7400~~ 870	c	~~26000~~ 1,500	c
14	Cyanide	57125	22	j	5.2	j		~~140~~ 3.9	c	~~140~~ 140	c
15	Asbestos	1332214						7,000,000 fibers/L	~~kg~~		
16	2, 3, 7, 8-TCDD Dioxin	1746016					Y	~~0.000000005~~ 1.8E-08	cl	~~0.0000000051~~ 1.9E-08	cl
17	Acrolein	107028						~~190~~ 3.2	c	~~290~~ 120	c
18	Acrylonitrile	107131					Y	~~0.051~~ 0.60	cl	~~0.25~~ 22	cl
19	Benzene	71432					~~Y~~	~~2.2~~ 3.0	cl	~~51~~ 28	cl
20	Bromoform	75252					Y	~~4.3~~ 62	cl	~~140~~ 380	cl
21	Carbon Tetrachloride	56235					Y	~~0.23~~ 3.6	cl	~~1.6~~ 15	cl
22	Chlorobenzene	108907						~~130~~ 89	c	~~1600~~ 270	c
23	Chlorodibromomethane	124481					Y	~~0.40~~ 7.4	cl	~~13~~ 67	cl
24	Chloroethane	75003									
25	2-Chloroethylvinyl	110758									

	Ether							
26	Chloroform	67663				~~5.7~~ 61	l<u>c</u>	~~470~~ 730	l<u>c</u>
27	Dichlorobromomethane	75274			Y	~~0.55~~ 8.8	cl	~~17~~ 86	cl
28	1,1-Dichloroethane	75343							
29	1,2-Dichloroethane	107062			Y	~~0.38~~ 96	cl	~~37~~ 2,000	cl
30	1,1-Dichloroethylene	75354				~~330~~ 310	l<u>c</u>	~~7100~~ 5,200	l<u>c</u>
31	1,2-Dichloropropane	78875			Y	~~0.50~~ 8.5	cl	~~15~~ 98	cl
32	1,3-Dichloropropene	542756			Y	~~0.34~~ 2.5	cl	~~21~~ 38	cl
33	Ethylbenzene	100414				~~530~~ 32	c	~~2100~~ 41	c
34	Methyl Bromide	74839				~~47~~ 130	c	~~1500~~ 3,700	c
35	Methyl Chloride	74873					h		h
36	Methylene Chloride	75092			~~Y~~	~~4.6~~ 38	cl	~~590~~ 960	cl
37	1,1,2,2-Tetrachloroethane	79345			Y	~~0.17~~ 1.4	cl	~~4.0~~ 8.6	cl
38	Tetrachloroethylene	127184			~~Y~~	~~0.69~~ 2.6	cl	~~3.3~~ 11	cl
39	Toluene	108883				~~1300~~ 47	c	~~15000~~ 170	c
40	1,2-Trans-Dichloroethylene	156605				~~140~~ 120	c	~~10000~~ 1200	c
41	1,1,1-Trichloroethane	71556				11,000	h<u>c</u>	56,000	h<u>c</u>
42	1,1,2-Trichloroethane	79005			Y	~~0.59~~ 4.9	cl	~~16~~ 29	cl
43	Trichloroethylene	79016			~~Y~~	~~2.5~~ 2.6	cl	~~30~~ 11	cl
44	Vinyl Chloride	75014			Y	~~0.025~~ 0.21	cl	~~2.4~~ 5.0	cl
45	2-Chlorophenol	95578				~~81~~ 30	c	~~150~~ 260	c
46	2,4-Dichlorophenol	120832				~~77~~ 9.6	c	~~290~~ 19	c
47	2,4-Dimethylphenol	105679				~~380~~ 110	c	~~850~~ 820	c
48	2-Methyl-4,6-Dinitrophenol	534521				~~13~~ 1.6	c	~~280~~ 8.6	c
49	2,4-Dinitrophenol	51285				~~69~~ 12	c	~~5300~~ 110	c

50	2-Nitrophenol	88755					
51	4-Nitrophenol	100027					
52	3-Methyl-4-Chlorophenol	59507				350	750
53	Pentachlorophenol	87865	20 m	13 m	Y	~~0.27~~ 0.11 cl	~~3.0~~ 0.12 cl
54	Phenol	108952				~~21000~~ 3,800 c	~~1700000~~ 85,000 c
55	2,4,6-Trichlorophenol	88062			Y	~~1.4~~ 1.5 cl	~~2.4~~ 2.0 cl
56	Acenaphthene	83329				~~670~~ 26 c	~~990~~ 28 c
57	Acenaphthylene	208968					
58	Anthracene	120127				~~8300~~ 110 c	~~40000~~ 120 c
59	Benzidine	92875			Y	~~0.000086~~ 0.0014 cl	~~0.00020~~ 0.033 cl
60	Benzo(a)Anthracene	56553			Y	~~0.0038~~ 0.0042 cl	~~0.018~~ 0.0042 cl
61	Benzo(a)Pyrene	50328			Y	~~0.0038~~ 0.00042 cl	~~0.018~~ 0.00042 cl
62	Benzo(b)Fluoranthene	205992			Y	~~0.0038~~ 0.0042 cl	~~0.018~~ 0.0042 cl
63	Benzo(ghi)Perylene	191242					
64	Benzo(k)Fluoranthene	207089			Y	~~0.0038~~ 0.042 cl	~~0.018~~ 0.042 cl
65	Bis(2-Chloroethoxy) Methane	111911					
66	Bis(2-Chloroethyl)Ether	111444			Y	~~0.030~~ 0.29 cl	~~0.53~~ 6.8 cl
67	Bis(2-Chloroisopropyl) Ether	108601				~~1400~~ 220 c	~~65000~~ 1200 c
68	Bis(2-Ethylhexyl) Phthalate	117817			Y	~~1.2~~ 1.2 cl	~~2.2~~ 1.2 cl
69	4-Bromophenyl Phenyl Ether	101553					
70	Butylbenzyl Phthalate	85687				~~1500~~ 0.33 c	~~1900~~ 0.33 c
71	2-Chloronaphthalene	91587				~~1000~~ 330 c	~~1600~~ 380 c

72	4-Chlorophenyl Phenyl Ether	7005723						
73	Chrysene	218019			Y	~~0.0038~~ 0.42	cl	~~0.018~~ 0.42	cl
74	Dibenzo (a,h) Anthracene	53703			Y	~~0.0038~~ 0.00042	cl	~~0.018~~ 0.00042	cl
75	1,2-Dichlorobenzene	95501				~~420~~ 700	c	~~1300~~ 1100	c
76	1,3-Dichlorobenzene	541731				~~320~~ 3.5	c	~~960~~ 4.8	c
77	1,4-Dichlorobenzene	106467				~~63~~ 180	c	~~190~~ 300	c
78	3,3'-Dichlorobenzidine	91941			Y	~~0.021~~ 0.29	cl	~~0.028~~ 0.48	cl
79	Diethyl Phthalate	84662				~~17000~~ 200	c	~~44000~~ 210	c
80	Dimethyl Phthalate	131113				~~270000~~ 600	c	~~1100000~~ 600	c
81	Di-n-Butyl Phthalate	84742				~~2000~~ 8.2	c	~~4500~~ 8.3	c
82	2,4-Dinitrotoluene	121142			Y	~~0.11~~ 0.46	cl	~~3.4~~ 5.5	cl
83	2,6-Dinitrotoluene	606202						
84	Di-n-Octyl Phthalate	117840						
85	1,2-Diphenylhydrazine	122667			Y	~~0.036~~ 0.25	cl	~~0.20~~ 0.65	cl
86	Fluoranthene	206440				~~130~~ 6.3	c	~~140~~ 6.4	c
87	Fluorene	86737				~~1100~~ 21	c	~~5300~~ 22	c
88	Hexachlorobenzene	118741			Y	~~0.00028~~ 0.00026	cl	~~0.00029~~ 0.00026	cl
89	Hexachlorobutadiene	87683			Y	~~0.44~~ 0.031	cl	~~18~~ 0.031	cl
90	Hexachloro-cyclopentadiene	77474				~~40~~ 1.3	c	~~1100~~ 1.3	c
91	Hexachloroethane	67721			~~Y~~	~~1.4~~ 0.23	cl	~~3.3~~ 0.24	cl
92	Ideno (1,2,3-cd) Pyrene	193395			Y	~~0.0038~~ 0.0042	cl	~~0.018~~ 0.0042	cl
93	Isophorone	78591			Y	~~35~~ 330	cl	~~960~~ 6.000	cl
94	Naphthalene	91203						
95	Nitrobenzene	98953				~~17~~ 12	c	~~690~~ 180	c

96	N-Nitrosodimethylamine	62759			Y	~~0.00069~~ 0.0065	cl	~~3.0~~ 9.1	cl
97	N-Nitrosodi-n-Propylamine	621647			Y	~~0.0050~~ 0.046	cl	~~0.51~~ 1.5	cl
98	N-Nitrosodiphenylamine	86306			Y	~~3.3~~ 14	cl	~~6.0~~ 18	cl
99	Phenanthrene	85018							
100	Pyrene	129000				~~830~~ 8.1	c	~~4000~~ 8.4	c
101	1,2,4-Trichlorobenzene	120821				~~35~~ 0.24	c	~~70~~ 0.24	c
102	Aldrin	309002	3		Y	~~0.000049~~ 2.5E-06	cl	~~0.000050~~ 2.5E-06	cl
103	alpha-BHC	319846			Y	~~0.0026~~ 0.0012	cl	~~0.0049~~ 0.0013	cl
104	beta-BHC	319857			Y	~~0.0091~~ 0.036	cl	~~0.017~~ 0.045	cl
105	gamma-BHC (Lindane)	58899	2	0.08		~~0.98~~ 1.4	l/c	~~1.8~~ 1.4	l/c
106	delta-BHC	319868							
107	Chlordane	57749	2.4	0.0043	Y	~~0.00080~~ 0.0010	cl	~~0.00081~~ 0.0010	cl
108	4,4'-DDT	50293	1.1	0.001	Y	~~0.00022~~ 9.8E-05	cl	~~0.00022~~ 9.8E-05	cl
109	4,4'-DDE	72559			Y	~~0.00022~~ 5.5E-05	cl	~~0.00022~~ 5.5E-05	cl
110	4,4'-DDD	72548			Y	~~0.00031~~ 0.00042	cl	~~0.00031~~ 0.00042	cl
111	Dieldrin	60571	2.5	0.0019	Y	~~0.000052~~ 4.2E-06	cl	~~0.000054~~ 4.2E-06	cl
112	alpha-Endosulfan	959988	0.22	0.056		~~62~~ 7.0	c	~~89~~ 8.5	c
113	beta-Endosulfan	33213659	0.22	0.056		~~62~~ 8.8	c	~~89~~ 10	c
114	Endosulfan Sulfate	1031078				~~62~~ 11	c	~~89~~ 14	c
115	Endrin	72208	0.18	0.0023		~~0.059~~ 0.011	c	~~0.060~~ 0.011	c
116	Endrin Aldehyde	7421934				~~0.29~~ 0.38	c	~~0.30~~ 0.40	c
117	Heptachlor	76448	0.52	0.0038	Y	~~0.000079~~ 2.0E-05	cl	~~0.000079~~ 2.0E-05	cl

118	Heptachlor Epoxide	1024573	0.52		0.0038		Y	~~0.000039~~ 1.0E-05	cl	~~0.000039~~ 1.0E-05	cl
119	Polychlorinated Biphenyls PCBs:	n			0.014	n	Y	~~0.000064~~ 0.00019	clo	~~0.000064~~ 0.00019	clo
120	Toxaphene	8001352	0.73		0.0002		Y	~~0.00028~~ 0.0023	cl	~~0.00028~~ 0.0023	cl
121	Chlorine		19	k	11	k					
122	1,2,4,5-Tetrachlorobenzene	95943						0.0093	c	0.0094	c
123	2,4,5-Trichlorophenol	95954						140	c	190	c
124	Bis (Chloromethyl) Ether	542881					Y	0.0015	cl	0.055	cl
125	Chlorophenoxy Herbicide (2,4,5-TP) [Silvex]	93721						1.000	c	3.900	c
126	Chlorophenoxy Herbicide (2,4-D)	94757						82	c	130	c
127	Dinitrophenols	25550587						13	c	320	c
128	Hexachlorocyclohexane (HCH)-Technical	608731					Y	0.027	cl	0.032	cl
129	Methoxychlor	72435						0.0054	c	0.0055	c
130	Pentachlorobenzene	608935						0.035	c	0.036	c

Table Footnotes

a. Chemical Abstracts Service (CAS) registry numbers which provide a unique identification for each chemical.

b. See definitions of Acute Criteria (CMC) and Chronic Criteria (CCC), Section 010 of these rules.

c. ~~*This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.*~~ This criterion is based on input values to human health criteria calculation specified in Idaho's Technical Support Document (TSD) for Human Health Criteria Calculations - 2015. Criteria for non-carcinogens are calculated using the formula:

$$AWQC = RfD * RSC * \left(\frac{BW}{DI + (FI * BAF)}\right)$$

and criteria for carcinogens are calculated using the formula:

$$AWQC = RSD * \left(\frac{BW}{DI + (FI * BAF)}\right)$$

Where: AWQC = Ambient water quality criterion (mg/L) BW = Human Body Weight (kg), 80 kg is used in these criteria DI = Drinking Water Intake, (L/day), 2.4 is used in these criteria FI = Fish Intake, (kg/day), 0.0665 is used in these criteria BAF = Bioaccumualtion Factor, L/kg, chemical specific value, see TSD RfD = Reference dose (mg/kg-day), chemical specific value, see TSD RSD = $\frac{Target\ Incremental\ Cancer\ Risk}{Cancer\ Potency\ Factor}$ (mg/kg-day), chemical specific value, see TSD RSC = Realtive Source Contribution, chemical specific value, see TSD
d. Inorganic forms only.
e. Criteria for these metals are expressed as a function of the water effect ratio, WER, as defined in Subsection 210.03.c.iii. CMC = column B1 value X WER. CCC = column B2 value X WER.
f. Criterion expressed as total recoverable (unfiltered) concentrations.
g. No aquatic life criterion is adopted for inorganic mercury. However, the narrative criteria for toxics in Section 200 of these rules applies. The Department believes application of the human health criterion for methylmercury will be protective of aquatic life in most situations.
h. No numeric human health criteria has been established for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the narrative criteria for toxics from Section 200 of these rules.
i. Aquatic life criteria for these metals are a function of total hardness (mg/L as calcium carbonate), the pollutant's water effect ratio (WER) as defined in Subsection 210.03.c.iii. and multiplied by an appropriate dissolved conversion factor as defined in Subsection 210.02. For comparative purposes only, the example values displayed in this table are shown as dissolved metal and correspond to a total hardness of one hundred (100) mg/L and a water effect ratio of one (1.0).
j. Criteria are expressed as weak acid dissociable (WAD) cyanide.
k. Total chlorine residual concentrations.
l. EPA guidance allows states to choose ~~*a risk factor*~~ from a range of 10^{-4} to 10^{-6} for the incremental increase in cancer risk used in human health criteria calculation. Idaho has chosen to base this criterion on carcinogenicity of 10^{-6-5} risk.
m. Aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows. Values displayed above in the table correspond to a pH of seven and eight tenths (7.8). CMC = exp(1.005(pH)-4.830) CCC = exp(1.005(pH)-5.290)
n. PCBs are a class of chemicals which include Aroclors, 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219, 11097691, 11104282, 11141165, 12672296, 11096825 and 12674112 respectively. The aquatic life criteria apply to this set of PCBs.
o. This criterion applies to total PCBs, (e.g. the sum of all congener, isomer, or Aroclor analyses).

p. This fish tissue residue criterion (TRC) for methylmercury is based on a human health reference dose (RfD) of 0.0001 mg/kg body weight-day; a relative source contribution (RSC) estimated to be 27% of the RfD; a human body weight (BW) of 70 kg (for adults); and a total fish consumption rate of 0.0175 kg/day for the general population, summed from trophic level (TL) breakdown of TL2 = 0.0038 kg fish/day + TL3 = 0.0080 kg fish/day + TL4 = 0.0057 kg fish/day. This is a criterion that is protective of the general population. A site-specific criterion or a criterion for a particular subpopulation may be calculated by using local or regional data, rather than the above default values, in the formula: TRC = [BW x {RfD – (RSCxRfD)}] / Σ TL. In waters inhabited by species listed as threatened or endangered under the Endangered Species Act or designated as their critical habitat, the Department will apply the human health fish tissue residue criterion for methylmercury to the highest trophic level available for sampling and analysis.

q. This criterion is based on the drinking water Maximum Containment Level (MCL).

~~(3-29-10)~~(_____)

02. Factors for Calculating Hardness Dependent Metals Criteria. Hardness dependent metals criteria are calculated using values from the following table in the equations: (5-3-03)

a. CMC=WER exp{mA[ln(hardness)]+bA} X Acute Conversion Factor. (5-3-03)

b. CCC=WER exp{mc[ln(hardness)]+bc} X Chronic Conversion Factor.

Metal	mA	bA	mc	bc	aAcute Conversion Factor	aChronic Conversion Factor
Arsenic	b	b	b	b	1.0	1.0
Cadmium	0.8367	-3.560	0.6247	-3.344	0.944 see footnote a	0.909
Chromium (III)	0.819	3.7256	0.8190	0.6848	0.316	0.860
Chromium (VI)	b	b	b	b	0.982	0.962
Copper	0.9422	-1.464	0.8545	-1.465	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	0.791	0.791
Mercury	b	b	b	b	0.85	0.85
Nickel	0.846	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.52	c	c	0.85	c
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Note to table: The term "exp" represents the base e exponential function.

Footnotes to table:

a. Conversion factors (CF) are from "Stephan, C. E. 1995. Derivation of conversion factors for the calculation of dissolved freshwater aquatic life criteria for metals. U.S. Environmental Protection Agency, Environmental Research Laboratory – Duluth." The conversion factors for cadmium and lead are hardness-dependent and can be calculated for any hardness (see limitations in Subsection 210.03.b.i.) using the following equations. For comparative purposes, the conversion factors for a total hardness of one hundred (100) mg/L are shown in the table. The conversion factor shall not exceed one (1).

Cadmium

Acute: CF=1.136672–[(ln hardness)(0.041838)] NOTE: The cadmium acute criterion equation was derived from dissolved metals toxicity data and thus requires no conversion; this conversion factor may be used to back calculate an equivalent total recoverable concentration.

Chronic: CF=1.101672–[(ln hardness)(0.041838)]

Lead (Acute and Chronic): CF=1.46203–[(ln hardness)(0.145712)

b. Not applicable

c. No chronic criteria are available for silver.

(3-29-10)

03. Applicability. The criteria established in Section 210 are subject to the general rules of applicability in the same way and to the same extent as are the other numeric chemical criteria when applied to the same use classifications ~~*including mixing zones, and low flow design discharge conditions below which numeric standards can be exceeded in flowing waters*~~. Mixing zones may be applied to toxic substance criteria subject to the limitations set forth in Section 060 and set out below. (~~*5-3-03)*~~(____)

a. For all waters for which the Department has determined mixing zones to be applicable, the toxic substance criteria apply at ~~*the appropriate locations specified within or at*~~ the boundary of the mixing zone(s) and beyond.~~*; otherwise the*~~ Absent an authorized mixing zone, the toxic substance criteria apply throughout the waterbody including at the end of any discharge pipe, canal or other discharge point. (~~*4-11-06)*~~(____)

b. Low flow design ~~*discharge*~~ conditions. Water quality-based effluent limits and mixing zones for toxic substances shall be based on the following low flows in perennial receiving streams. Numeric chemical ~~*standards can only*~~ criteria may be exceeded in perennial streams ~~*permitted discharges*~~ outside any applicable mixing zone only when flows are less than ~~*the following*~~ these values:

Aquatic Life		Human Health	
CMC ("acute" criteria)	1Q10 or 1B3	Non-carcinogens	~~*30Q5*~~ Harmonic mean flow
CCC ("chronic" criteria)	7Q10 or 4B3	Carcinogens	Harmonic mean flow

(~~*4-11-06)*~~(____)

i. Where "1Q10" is the lowest one-day flow with an average recurrence frequency of once in ten (10) years determined hydrologically; (5-3-03)

ii. Where "1B3" is biologically based and indicates an allowable exceedance of once every three (3) years. It may be determined by EPA's computerized method (DFLOW model); (5-3-03)

iii. Where "7Q10" is the lowest average seven (7) consecutive day low flow with an average recurrence frequency of once in ten (10) years determined hydrologically; (5-3-03)

iv. Where "4B3" is biologically based and indicates an allowable exceedance for four (4) consecutive days once every three (3) years. It may be determined by EPA's computerized method (DFLOW model); (5-3-03)

~~v. Where "30Q5" is the lowest average thirty (30) consecutive day low flow with an average recurrence frequency of once in five (5) years determined hydrologically; and (5-3-03)~~

vi. Where the harmonic mean flow is a long term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows. (5-3-03)

c. Application of aquatic life metals criteria. ~~(5-3-03)~~( )

i. For metals other than cadmium, for purposes of calculating hardness dependent aquatic life criteria from the equations in Subsection 210.02, the minimum hardness allowed for use in those equations shall not be less than twenty-five (25) mg/l, as calcium carbonate, even if the actual ambient hardness is less than twenty-five (25) mg/l as calcium carbonate. For cadmium, the minimum hardness for use in those equations shall not be less than ten (10) mg/l, as calcium carbonate. The maximum hardness allowed for use in those equations shall not be greater than four hundred (400) mg/l, as calcium carbonate, except as specified in Subsections 210.03.c.ii. and 210.03.c.iii., even if the actual ambient hardness is greater than four hundred (400) mg/l as calcium carbonate. (3-29-10)

ii. The hardness values used for calculating aquatic life criteria for metals at design discharge conditions shall be representative of the ambient hardnesses for a receiving water that occur at the design discharge conditions given in Subsection 210.03.b. (5-3-03)

iii. Except as otherwise noted, the aquatic life criteria for metals (compounds #1 through #13 in the criteria table of Subsection 210.02) are expressed as dissolved metal concentrations. Unless otherwise specified by the Department, dissolved concentrations are considered to be concentrations recovered from a sample which has passed through a forty-five hundredths (0.45) micron filter. For the purposes of calculating aquatic life criteria for metals from the equations in footnotes e. and i. in the criteria table in Subsection 210.01, the water effect ratio is computed as a specific pollutant's acute or chronic toxicity values measured in water from the site covered by the standard, divided by the respective acute or chronic toxicity value in laboratory dilution water. The water-effect ratio shall be assigned a value of one (1.0), except where the Department assigns a different value that protects the designated uses of the water body from the toxic effects of the pollutant, and is derived from suitable tests on sampled water representative of conditions in the affected water body, consistent with the design discharge conditions established in Subsection 210.03.b. For purposes of calculating water effects ratios, the term acute toxicity value is the toxicity test results, such as the concentration lethal one-half (1/2) of the test organisms (i.e., LC5O) after ninety-six (96) hours of exposure (e.g., fish toxicity tests) or the effect concentration to one-half of the test organisms, (i.e., EC5O) after forty-eight (48) hours of exposure (e.g., daphnia toxicity tests). For purposes of calculating water effects ratios, the term chronic value is the result from appropriate hypothesis testing or regression analysis of measurements of growth, reproduction, or survival from life cycle, partial life cycle, or early life stage tests. The determination of acute and chronic values shall be according to current standard protocols (e.g., those published by the American Society for Testing and Materials (ASTM)) or other comparable methods. For calculation of criteria using site-specific values for both the hardness and the water effect ratio, the hardness used in the equations in Subsection 210.02 shall be as required in Subsection 210.03.c.ii. Water hardness shall be calculated from the measured calcium and magnesium ions present, and the ratio of calcium to magnesium shall be approximately the same in laboratory toxicity testing water as in the site water, or be similar to average ratios of laboratory waters used to derive the criteria. (4-6-05)

iv. Implementation Guidance for the Idaho Mercury Water Quality Criteria. (4-6-05)

(1) The "Implementation Guidance for the Idaho Mercury Water Quality Criteria" describes in detail suggested methods for discharge related monitoring requirements, calculation of reasonable potential to exceed (RPTE) water quality criteria in determining need for mercury effluent limits, and use of fish tissue mercury data in calculating mercury load reductions. This guidance, or its updates, will provide assistance to the Department and the public when implementing the methylmercury criterion. The "Implementation Guidance for the Idaho Mercury Water Quality Criteria" also provides basic background information on mercury in the environment, the novelty of a fish tissue criterion for water quality, the connection between human health and aquatic life protection, and the relation of environmental programs outside of Clean Water Act programs to reducing mercury contamination of the

environment. The "Implementation Guidance for the Idaho Mercury Water Quality Criteria" is available at the Department of Environmental Quality, 1410 N. Hilton, Boise, Idaho 83706, and on the DEQ website at http://www.deq.idaho.gov/media/639808-idaho_mercury_wq_guidance.pdf. (4-6-05)

(2) The implementation of a fish tissue criterion in NPDES permits and TMDLs requires a non-traditional approach, as the basic criterion is not a concentration in water. In applying the methylmercury fish tissue criterion in the context of NPDES effluent limits and TMDL load reductions, the Department will assume change in fish tissue concentrations of methylmercury are proportional to change in water body loading of total mercury. Reasonable potential to exceed (RPTE) the fish tissue criterion for existing NPDES sources will be based on measured fish tissue concentrations potentially affected by the discharge exceeding a specified threshold value, based on uncertainty due to measurement variability. This threshold value is also used for TMDL decisions. Because measured fish tissue concentrations do not reflect the effect of proposed new or increased discharge of mercury, RPTE in these cases will be based upon an estimated fish tissue methylmercury concentration, using projected changes in waterbody loading of total mercury and a proportional response in fish tissue mercury. For the above purposes, mercury will be measured in the skinless filets of sport fish using techniques capable of detecting tissue concentrations down to point zero five (0.05) mg/kg. Total mercury analysis may be used, but will be assumed to be all methylmercury for purposes of implementing the criterion. (4-6-05)

d. Application of toxics criteria. ( )

~~vi~~i. Frequency and duration for aquatic life toxics criteria. Column B1 criteria are concentrations not to be exceeded for a one-hour average more than once in three (3) years. Column B2 criteria are concentrations not to be exceeded for a four-day average more than once in three (3) years. ~~(4-11-06)~~( )

ii. Frequency and duration for human health toxics criteria. Columns C1 and C2 criteria are not to be exceeded based on an annual harmonic mean. ( )

04. National Pollutant Discharge Elimination System Permitting. For the purposes of NPDES permitting, interpretation and implementation of metals criteria listed in Subsection 210.02 should be governed by the following standards, that are hereby incorporated by reference, in addition to other scientifically defensible methods deemed appropriate by the Department; provided, however, any identified conversion factors within these documents are not incorporated by reference. Metals criteria conversion factors are identified in Subsection 210.02 of this rule. (5-3-03)

a. "Guidance Document on Dissolved Criteria -- Expression of Aquatic Life Criteria," EPA, October 1993, http://www.deq.idaho.gov/media/827413-epa-guidance-dissolved-criteria-1093.pdf. (4-5-00)

b. "Guidance Document on Dynamic Modeling and Translators," EPA, August 1993, http://www.deq.idaho.gov/media/827417-epa-guidance-dynamic-modeling-translators-0893.pdf. (4-5-00)

c. "Guidance Document on Clean Analytical Techniques and Monitoring," EPA, October 1993, http://www.deq.idaho.gov/media/827421-epa-guidance-analytical-techniques-1093.pdf. (4-5-00)

d. "Interim Guidance on Determination and Use of Water-Effect Ratios for Metals," EPA, February 1994, http://www.deq.idaho.gov/media/827409-epa-guidance-water-effect-ratios-for-metals-0294.pdf. (4-5-00)

e. "Technical Support Document for Water Quality-Based Toxics Control," EPA, March 1991, http://www.deq.idaho.gov/media/60177101/58-0102-1201-epa-technical-support-document-1991.pdf. ( )

05. Development of Toxic Substance Criteria. (4-5-00)

a. Aquatic Life Communities Criteria. Numeric criteria for the protection of aquatic life uses not identified in these rules for toxic substances, may be derived by the Department from the following information: (4-5-00)

i. Site-specific criteria developed pursuant to Section 275; (4-5-00)

ii. Effluent biomonitoring, toxicity testing and whole-effluent toxicity determinations; (4-5-00)

iii. The most recent recommended criteria defined in EPA's ~~*Aquatic Toxicity Information Retrieval (ACQUIRE)*~~ ECOTOX database. When using EPA recommended criteria to derive water quality criteria to protect aquatic life uses, the lowest observed effect concentrations (LOECs) shall be considered; or ~~*(4-5-00)*~~( )

iv. Scientific studies including, but not limited to, instream benthic assessment or rapid bioassessment. (4-5-00)

b. Human Health Criteria. (4-5-00)

i. When numeric criteria for the protection of human health are not identified in these rules for toxic substances, quantifiable criteria may be derived by the Department ~~*from the most recent recommended criteria*~~ using best available science on toxicity thresholds (i.e. reference dose or cancer slope factor), such as defined in EPA's Integrated Risk Information System (IRIS) or other peer-reviewed source acceptable to the Department. ( )

ii. When using ~~*EPA recommended criteria*~~ toxicity thresholds to derive water quality criteria to protect human health, a fish consumption rate ~~*of seventeen point five (17.5) grams/day, a*~~ representative of the population to be protected, a mean adult body weight, and adult 90th percentile water ingestion rate ~~*of two (2) liters/day*~~, a trophic level weighted BAF or BCF, and a hazard quotient of one (1) for non-carcinogens or a cancer risk level of 10^{-5} for carcinogens shall be utilized. ~~*(4-11-06)*~~( )

Note: In 2006, Idaho updated 167 human health criteria for 88 chemicals. On May 10, 2012, EPA disapproved Idaho's 2006 update of 167 human health criteria for toxic substances (see IDAPA 58.01.02.210.01) and the use of 17.5 g/day fish consumption rate for human health criteria. This action was based on EPA's judgment that the fish consumption rate used in criteria derivation was not adequately protective. As a result of this action, the fish consumption rate of 6.5 g/day published in the 2005 version of IDAPA 58.01.02.210.05.b.i. continues to apply and is effective for federal Clean Water Act purposes. For more information regarding this EPA disapproval, go to http://www.deq.idaho.gov/epa-actions-on-proposed-standards.